EU-type examination certificate

Number **T10368** revision 7
Project number 2235973

Issued by	NMi Certin B.V., designated and notified by the Netherlands to perform tasks with respect to conformity modules mentioned in article 17 of Directive 2014/32/EU, after having established that the Measuring instrument meets the applicable requirements of module B of Directive 2014/32/EU, to:
Manufacturer	BTicino SpA Viale Borri, 231 21100 - Varese (VE) Italy
Measuring instrument	A static **Active Electrical Energy Meter**

Brands	:	IME, LGR, SCH, btc, SRK, MLR, NHP, HGR, SMS, or LAB
Type	:	CE4DMID21, CE4DMID22, CE4DMID31, CE4DMID32, CE4DMID3M or CE4DMID3MBC
Reference voltage	:	3x190/328…3x277/480 V or 3x400 V or 3x230 V
Reference current	:	10 A
Destined for the measurement of	:	electrical energy, in a - three-phase four-wire network - three-phase three-wire delta network
Accuracy class	:	A or B
Environment classes	:	M1 / E2
Temperature range	:	-25 °C / +55 °C

Further properties are described in the annexes:
– Description T10368 revision 7;
– Documentation folder T10368-6.

Valid until	22 August 2021
Remark	This revision replaces the earlier versions, including its documentation folder.
Issuing Authority	**NMi Certin B.V., Notified Body number 0122** 3 December 2018

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1 General information about the instrument

All properties of the static active electrical energy meter, whether mentioned or not, shall not be in conflict with the legislation.

1.1 Essential parts

Description	Document	Remarks
measuring sensor	10386/0-04	
CPU board - T17M0012D - T17M0012E - T17M0012F	 10386/0-06, 10386/0-07 10386/5-01, 10386/0-07 10386/5-02, 10386/0-07	All parts of the printed circuit boards are essential, except the components which are related to parts as described in paragraph 1.4 or 1.6.
PSU board CE4DMID31/32/3M - T17M0026BA	 10386/0-08, 10386/0-09	
PSU board CE4DMID21/22 - T17M0026BB	 10386/3-03, 10386/3-04	
Transformers board - T17D0036C/E	 10386/0-10, 10386/0-11	

1.2 Essential characteristics

1.2.1 See EU-type examination certificate T10368 revision 7 and the characteristics mentioned below.

1.2.2 Approved meter types : CE4DMID21 or CE4DMID22 (three-phase three-wire delta network) CE4DMID31, CE4DMID32, CE4DMID3M (three-phase four-wire network) or CE4DMID3MBC

1.2.3 Frequency : 50 Hz and 60 Hz

1.2.4 Meter constant : 1.000 imp./kWh

1.2.5 Amount of registers : 1

1.2.6 Error messages : see document no. 10368/0-02, chapter called “Anomaly Display”.

1.2.7 Export energy : the meter is not capable of measuring energy in 2 directions.

1.2.8 Software specification (refer to WELMEC guide 7.2):

- Software type P;
- Risk Class C;
- Extension L, D, S and T are not applicable.

Software version	Identification number (checksum)	Remarks
V.1.5 or V.1.6 or V.1.9 or V.2.0 or V.2.1	00232 34121 38376 02902 23887	

The software version and checksum are displayed in the display sequence.

1.3 Essential shapes

1.3.1 The nameplate is bearing at least, good legible, the information as mentioned in the regulations on energy meters. An example of the markings is shown in document no. 10368/3-01 (CE4DMID21 / CE4DMID22), document no. 10368/3-02 (CE4DMID31 / CE4DMID32), document no. 10368/4-01 (CE4DMID3M), document no. 10368/6-01 and document 10368/7-01.

1.3.2 Sealing: see chapter 2.

1.3.3 The registration observation is executed by means of an LED.

1.4 Conditional parts

1.4.1 Terminal block
The connections for the current cables on the terminal block have a diameter of at least 5 mm. The cables are connected with the terminal block via 1 screw.

1.4.2 Housing
The meter has got a dustproof housing, which has sufficient tensile strength. The cover is made of synthetic material.

1.4.3 Terminal cover
The terminal cover is made of synthetic material.

1.4.4 Register
The quantity of measured energy is presented by means of a display with at least 6 elements. The way of presentation is described in document no. 10368/0-02, chapter called “Display”. The indication with a least significant element of at least 0,01 kWh, is normally displayed on the display.

1.4.5 Communication and I/O
The meter types CE4DMID21 and CE4DMID31 are provided with RS485 serial communication whereby MODBUS and N2OPEN protocols are used. Via RS485 communication no legally relevant data can be altered.
The meter type CE4DMID3M is provided with M-Bus communication. Via M-Bus communication no legally relevant data can be altered.
The meter types CE4DMID22 and CE4DMID32 are provided with a Pulse/Output board.

Description	Document	Remarks
RS485 Board - T17D0085B	10368/0-12, 10368/0-13	Only CE4DMID21 and CE4DMID31
M-Bus board - T17D0091AA	10368/4-02, 10368/4-03	Only CE4DMID3M
Pulse/Output board - T17D0089A	10368/0-14, 10368/0-15	Only CE4DMID22 and CE4DMID32

1.4.6 Calibration Jumper
A hardware calibration jumper is used to allow the changing of calibration constants before to close the meter in production phase. Under normal situation, the jumper position is such that no legal data can be altered. The calibration jumper J6 is shown in document 10368/0-06.

1.5 Conditional characteristics

1.5.1 Maximum current: smaller than or equal to 63 A, and at least 5 times higher than the reference current.

1.5.2 Minimum current: 0,5 A

2 Seals

The meter is closed by at least 2 thermo-sealed plastic fasteners, to prevent unauthorized access to the inner part of the meter. In case of 2 thermo-sealed plastic fasteners they are put in opposite position.

Furthermore the meter is provided with possibilities for utility seals, as indicated in document no. 10368/0-05 (example).

3 Conditions for conformity assessment according to module D or F

The influence factors for temperature, frequency and voltage, which are necessary to perform the conformity assessment according to module D or F, are presented in Annex 1, belonging to this EU-type examination certificate.
Based on the WELMEC Guide 11.1, section 2.5.6, the sum of the square values is presented.

Annex 1

Influence factors for temperature, frequency and voltage

During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table below presents the sum of the square values per load point, determined via the following formula:

$$\delta e(T,U,f) = \sqrt{\delta e^2(T,I,\cos\varphi) + \delta e^2(U,I,\cos\varphi) + \delta e^2(f,I,\cos\varphi)}$$

with:

- $\delta e(T, I, \cos\varphi)$ = the additional percentage error due to the variation of the temperature at a certain load;
- $\delta e(U, I, \cos\varphi)$ = the additional percentage error due to the variation of the voltage at the same load;
- $\delta e(f, I, \cos\varphi)$ = the additional percentage error due to the variation of the frequency at the same load.

Current	Power factor	-25°C [%]	-10°C [%]	+5°C [%]	+23°C [%]	+40°C [%]	+55°C [%]
Imin	1	0,6	0,4	0,1	0,0	0,2	0,3
Itr	1	0,5	0,3	0,0	0,0	0,2	0,4
	0,5 ind.	0,5	0,3	0,1	0,1	0,2	0,4
	0,8 cap.	0,5	0,2	0,0	0,0	0,3	0,4
Itr phase R	1	0,4	0,2	0,0	0,0	0,4	0,5
	0,5 ind.	0,4	0,3	0,0	0,0	0,5	0,6
Itr phase S	1	0,6	0,4	0,1	0,0	0,3	0,5
	0,5 ind.	0,7	0,5	0,1	0,1	0,5	0,6
Itr phase T	1	0,5	0,3	0,0	0,0	0,2	0,5
	0,5 ind.	0,5	0,3	0,1	0,1	0,2	0,7
10 Itr	1	0,3	0,1	0,0	0,0	0,2	0,3
	0,5 ind.	0,4	0,1	0,0	0,0	0,2	0,3
	0,8 cap.	0,3	0,1	0,0	0,0	0,3	0,3
10 Itr phase R	1	0,3	0,1	0,0	0,0	0,2	0,3
	0,5 ind.	0,4	0,2	0,0	0,0	0,2	0,3
10 Itr phase S	1	0,4	0,2	0,0	0,0	0,3	0,4
	0,5 ind.	0,4	0,2	0,0	0,0	0,3	0,4
10 Itr phase T	1	0,3	0,1	0,0	0,0	0,2	0,3
	0,5 ind.	0,3	0,1	0,0	0,0	0,2	0,4
Imax	1	0,3	0,1	0,0	0,0	0,2	0,3
	0,5 ind.	0,3	0,2	0,1	0,1	0,3	0,5
	0,8 cap.	0,3	0,1	0,1	0,0	0,2	0,2
Imax phase R	1	0,3	0,1	0,1	0,0	0,2	0,3
	0,5 ind.	0,5	0,3	0,2	0,1	0,4	0,6
Imax phase S	1	0,3	0,1	0,0	0,0	0,2	0,3
	0,5 ind.	0,4	0,2	0,2	0,2	0,4	0,7
Imax phase T	1	0,3	0,1	0,0	0,0	0,2	0,3
	0,5 ind.	0,3	0,1	0,1	0,1	0,3	0,4